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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

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PLANT PEST CONTROL BRANCH

ECONOMIC INSECT SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 4 June 25, 1954 No. 25

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

CHINCH BUG continues to threaten in areas of Indiana and Illinois. Moving into corn in several Arkansas counties. (page 532).

LYGUS BUGS unusually heavy in alfalfa in Mesilla Valley, New Mexico. Also numerous in some counties of Utah, Nebraska and South Dakota. (page 535).

PURPLE SCALE on Florida citrus expected to be severe this summer. (page 538).

CUCUMBER BEETLES heavy in South Dakota and areas of Missouri and Michigan. Very abundant in Wisconsin. (pages 540, 555).

Unusual report of MITES on tobacco from Tennessee. (page 543).

BOLL WEEVIL counts heavier than last year in areas of Alabama, Mississippi, Louisiana and Texas but lighter in Georgia and the Carolinas. (page 546).

TENT CATERPILLARS causing concern in South Dakota, Minnesota, Wisconsin, Colorado and Washington. (pages 550,554).

BEET LEAFHOPPER conditions in eastern New Mexico, northwestern Texas and western Oklahoma. (page 544).

Status of the KHAPRA BEETLE in the Western States. (page 557).

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Reports in this issue are for the week ending June 18 unless otherwise designated.

WEATHER FOR THE WEEK ENDING JUNE 22, 1954

Frequent light to moderate to locally heavy showers in many areas east of the Rocky Mountains helped relieve the dry conditions in Maryland, Virginia, Louisiana, and some adjacent areas and maintained abundant moisture in the Florida Peninsula and the central and north-central Interior. Showers were less frequent and much too light, however, to relieve the critical soil moisture shortage in southern portions of Mississippi, Alabama, Georgia, and northwestern Florida where many crops are in poor to fair condition and even cotton would benefit by more rain. This dry condition is spreading into the Carolinas where the need for rain is increasing. Showers missed most of the western portions of the central and lower Great Plains altogether where hot winds continued to dry the already parched soils. Precipitation was also light in the Northeast, but owing to previous rains soil moisture is either still adequate or not seriously short.

Warmer than normal weather, without any unusually extremes continued in most of the central Interior, with average departures from normal ranging up to 12° at Chicago, Illinois and diminishing to about 1° in the extreme South. Daily maxima exceeded 90° in the central and south-central Interior. East of the Appalachians a cool maritime polar air mass was responsible for several cool nights, maxima in the 80's and weekly averages of a few degrees below normal. Some record low temperatures for the season occurred in Virginia on the 19th and 20th.

In north-central areas abundant soil moisture and warm, humid weather were excellent for crop growth and development. These optimum conditions, however, were offset locally by damaging wind and hailstorms, and excessive rainfall. Heavy rains left many fields covered with water in southern Minnesota, eastern portions of South Dakota and Nebraska, and northern portions of Iowa. In the latter area most rivers were above flood stage, and the Raccoon and Des Moines Rivers were expected to reach record-breaking stages this coming week. The weather was warmer in the far West during the past week, but still much colder than normal in northern areas where frost, occurring about mid-week in several sections, caused some damage in the Columbian Basin of Washington, scattered sections of Idaho, Utah, Nevada, and southwestern Montana. Temperatures averaged slightly above normal in southern parts of this area. Precipitation was mostly light but adequate in the northern portion of this region, but no measurable amount fell in the southern section where ranges are dry. (Summary Supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - CALIFORNIA - Range species damaged vineyards in Kings County. Infestations reported in rangeland in Fresno and Madera Counties. Over 100,000 acres of rangeland infested in Madera County. Bands of *Oedaleonotus enigma* and *Melanoplus devastator* more common than usual in rolling land and foothill areas in Merced, Stanislaus, Calaveras, Eldorado, eastern Sacramento, Colusa, and Glenn Counties. Heavier infestations in Butte and Tehama Counties; bands of nymphs up to two miles wide. *Camnula pellucida* required control in parts of Plumas County. (Coop. Ins. Pest Rept.,May). ARIZONA - *M. bivittatus* severe on crop land in Springerville-Eagar area, up to 100 per square yard. *C. pellucida*, *Aulocara elliotti*, *M. occidentalis* severe on adjoining pasture, up to 100 per square yard, mostly adults. *C. pellucida* hatching but developing slowly in Greer-Big Lake area because of weather. (Ariz. Coop. Rept.). UTAH - Nymphs moderate in margins of most fields in Cache, Weber, Davis, Salt Lake and Tooele Counties. (Knowlton). NEW MEXICO - Probably most pressing insect problem in State, June 12. A new infestation has shown up in Lea County; counts from 5 to 50 per square yard. Species involved tentatively identified as *M. differentialis*. (Dobson). TEXAS - *Schistocerca americana* heavy widespread on pastures and crops in Comanche County. (Fry). Grasshoppers unusually abundant on crops in Cherokee County. (Young). Medium to heavy widespread on pastures, corn, cotton and other crops in Tarrant, Collin, Eastland, Hill, Falls, Bosque, Erath, McLennan, Robertson and Callahan Counties. (McCullough, Dahlberg, Davis). SOUTH DAKOTA - Low infestations in eastern counties. *M. bivittatus*, *M. mexicanus* and *Ageneotettix deorum* in first and second instars. Some *M. confusus* in fourth instar. Infestations building up in central counties. Twenty-five to 30 percent hatch of *M. bivittatus* and *M. mexicanus*. Up to 30 per square yard in some fields and margins. (Burge, June 12). Thirty percent hatch of *M. bivittatus* in central area, 25 percent hatch of *M. mexicanus*. Up to 30 nymphs per square yard. (Burge, June 21). KANSAS - Adult *Melanoplus* spp. dispersing and causing some injury to corn in central and eastern areas. Hatch apparently at peak in eastern area, counts from 10 to 30 per square yard some areas. Populations in western area generally light (5 to 20 per square yard), largely confined to roadsides and fencerows. (Matthew). MISSOURI - Heavy number of *Melanoplus* spp. adults and nymphs causing moderate to heavy damage to gardens and marginal areas of croplands over State. Pastures, alfalfa, red clover and meadows have 12-40 grasshoppers per square yard, margins more heavily infested. (Kyd, Thomas). ILLINOIS - Average number of

Melanoplus spp. (mainly) taken per sweep in legumes northeast 2.45, eastern 5.53, east southeast 15.1, southeast 2.4, southwest 9.7. Average in roadside grasses for these sections run from 0.46 to 3.90 per sweep. (Petty). TENNESSEE - More than normally abundant in Clarksville area. (Scott). FLORIDA - Average of 3 red-legged grasshoppers per 10 feet of row in peanuts at Mayo. (Van Pelt, June 11). IOWA - Increasing noticeably in second-year alfalfa and clover, roadsides and ditch banks. From 1 per sweep in northern area to 5-30 per sweep in southwest. M. femur-rubrum differentialis and mexicanus present. (Craig). MINNESOTA - Egg populations light and no hatch noted in northwest and north central areas. (Minn. Ins. Rept. Serv.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - KANSAS - Oviposition about complete in northeast section. First and second instars on early-planted corn in Doniphan County; as many as 15 egg masses per 25 plants in marginal rows, but lighter elsewhere in fields. (Matthew). SOUTH DAKOTA - Twenty percent emergence southeast counties. pupation complete. Corn up to 24 inches extended. (Halborson, June 21). MISSOURI - Moth activity continues over northern two-thirds of State but egg-laying apparently light and drawn out. Tasseling corn in southeast area averages 4-8 percent infestation of 6-16 second to fourth instars per 100 stalks. (Kyd, Thomas). ILLINOIS - Moth emergence from 52 to 73 percent in northeastern, northwestern and eastern sections with pupation 100 percent. Egg masses per 100 corn plants: northeastern 11.2, northwestern 103.2, eastern 12.0, central 98.8, and western 20. Conditions at least as favorable as a year ago as corn growth is ahead while borer development is slightly later. (Petty, Decker). INDIANA - First moths at light traps May 23 at Orleans, June 7 at Lafayette. (Deay). Moths more common than usual. Corn sufficiently high in southern counties to attract moths, but not in central area. (Davis). KENTUCKY - Infestations, indicated by shot-hole injury, average about 50 percent in southwestern area and 70 percent in north central area. (Rodriguez). DELAWARE - Conspicuous injury near Milford. (Late News). IOWA - Emergence 76 percent in central area June 18. Egg masses varying up to 300 per 100 plants, latter count on 30-inch corn in Dallas County. (Brindley). MINNESOTA - Pupation nearly complete in all but east central area. Peak moth emergence expected week of June 28. (Minn. Ins. Rept. Serv.).

CORN EARWORM (Heliothis armigera) - DELAWARE - Small larvae in alfalfa. (Late News). KENTUCKY - Moderate to heavy damage to whorls of corn in southwestern area. (Rodriguez). MISSISSIPPI - Damaging young corn and tomatoes in Oktibbeha and Webster Counties. (Hester). MISSOURI - Moth flight continues over much of State. Small larvae as far north as St. Louis where early sweet corn becoming heavily infested. Corn in silk in southeast has 3-5 eggs and 2-3 larvae per ear; 6-12 percent injury to whorls. Alfalfa and red clover average 1 small larvae per 10 sweeps of standard net. (Kyd, Thomas). KANSAS - Oviposition in nearly all areas of eastern two-thirds of State. (Matthew). ARKANSAS - Severe damage to corn in milk stage in east central counties. (Barnes, Warren). OHIO - Eggs abundant in silks of early market corn at Marietta June 17. (Neiswander).

BILLBUGS - GEORGIA - Heavy infestation in 25 acres corn in Dodge County. First and second plantings severely damaged. (Burnett). ILLINOIS - Feeding on corn common. (Petty). MISSOURI - A heavy infestation of Calendra ochreus? coming from dry lake bed totally destroyed several surrounding fields of corn and caused extensive damage to wheat fields in St. Charles County. (Kyd, Thomas).

CORN LEAF BLOTCH MINER (Agromyza parvicornis) - DELAWARE - Adults abundant. Injury to corn in Kent County. (Late News).

SUGARCANE BEETLE (Euetheola rugiceps) - MISSISSIPPI - Adults ruining stands of young corn in Lauderdale County. Serious damage to corn in Oktibbeha County. (Hutchins, Hester). TENNESSEE - Local scattered infestations causing considerable damage over State. (Mullett).

SUGARCANE BEETLE and CARROT BEETLE (Ligyrus gibbosus) - GA. - practically destroyed 8 acres young corn in Elbert County, June 4. (Jordan).

CONCHUELA (Chlorochroa ligata) - TEXAS - Heavy locally on grain sorghum in Zavala County. Increasing rapidly. (Richardson).

FLEA BEETLES - ILLINOIS - Flea beetles (mainly Chaetocnema pulicaria) on corn averaged 0.18 per 25 plants in northeast, 0.27 in eastern, 3.9 in south southeast, 5.6 in southeast and 0.8 in southwest. (Petty).

FALL ARMYWORM (Laphygma frugiperda) - GEORGIA - Infesting whorls of corn in Brantley and Thomas Counties. (Morgan, Blickenstaff).

CHINCH BUG (Blissus leucopterus) - SOUTH DAKOTA - Taken in grass in Union County. (Severin, June 12). MISSOURI - Weather has reduced populations in parts of southeast area, but in Pemiscot and Dunklin Counties infestations on earlier corn very high. Average of 2-4 adults and 50-100 nymphs per stalk in infested fields. (Kyd, Thomas). ILLINOIS - From 0 to 4.5 adults per linear foot in wheat and oats, highest in central area. Thirteen nymphs per linear foot in wheat and oats in southwest section. (Petty). INDIANA - Continue to threaten crops in eastern and western areas north of U.S. Route 40. (Davis). MISSISSIPPI - Reported on corn in Choctaw, Oktibbeha and Tate Counties. (Hutchins). NORTH CAROLINA - Damaging small grains and corn in Bladen, Wayne and Wilson Counties. Also lawns in Wilson County. (Mitchell). ARKANSAS - Moving into corn and causing some concern in Randolph, Craighead, Woodruff and Cross Counties. (Barnes, Warren).

STALK BORER (Papaipema nebris) - INDIANA - Common in wheat in central area. (Davis). MISSOURI - Scattered light infestation around weedy margins of corn in east central area. (Kyd, Thomas).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - First-generation moths emerging in considerable numbers; dusting for second-generation underway in southern area. (Smith).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - MISSOURI - Larvae common on roots of early corn in southern third of State. From 4-18 per hill in sandy fields. (Kyd, Thomas).

CORN LEAF APHID (Rhopalosiphum maidis) - KANSAS - Infestations beginning on corn and sorghum in Stafford, Edwards and Ford Counties. (Matthew). MISSOURI - A few corn fields in Dunklin County heavily infested. Lady beetles numerous. (Kyd, Thomas).

YELLOW SUGARCANE APHID (Sipha flava) - LOUISIANA - Numerous, widely-scattered infestations throughout cane belt. (Dugas). FLORIDA - Continues to decline in the Everglades. (Genung, Questel, Thames, June 11).

WEBWORMS - NEBRASKA - Thaumatopsis pectinifer damaging corn in sandy soils of Madison County. (Roselle). MISSOURI - Moderate damage to alfalfa in Mississippi, New Madrid and Pemiscot Counties by nearly full-grown larvae. (Kyd, Thomas).

WIREWORMS - KANSAS - Some stands of corn in local areas of central and northeastern sections being destroyed. From 2 to 13 larvae per plant in Riley County. Replanting necessary some fields. (Matthew).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Infestations found in some wheat fields of Sherman County; 8 to 12 percent tiller infestation. (Matthew).

EASTERN FIELD WIREWORM (Limonius agonus) - PENNSYLVANIA - General in southeastern area. (Menusan).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NEBRASKA - Adults numerous in nearly all southern Nebraska counties. (Roselle).

CUTWORMS - PENNSYLVANIA - Destroyed fields of corn in York County. (Pepper). IOWA - Occurring locally over wide area and often in numbers from 2 to 50 per square foot in alfalfa, meadow and other suitable habitat. Mostly variegated cutworms with a few armyworms. (Gunderson).

ARMYWORMS - NORTH CAROLINA - Damaging corn, pasture, barley, rye and alfalfa in Cleveland, Henderson, Madison and Watauga Counties. (Mitchell). MICHIGAN - Spotted light infestations of Pseudaletia unipuncta at Buchanan, Niles and Freemont. (Hutson). INDIANA - Severe outbreak has developed in northwestern area. County agent of LaPorte County reports about 12 planes applying sprays. Thirty to 50 percent wheat destroyed in this county. Parasites beginning to show up. (Davis). ILLINOIS - Except in a few isolated cases, first-generation damage about over in most of State. Moth flight noticeable in northern area and small larvae in grassy areas. Parasites very common. (Decker, Petty).

PALE WESTERN CUTWORM (Agrotis orthogonia) - IDAHO - Outbreak numbers in 75-acre field of dry-land barley in Power County. Planting nearly destroyed. According to available files, first record of economic damage by this insect in Idaho. (Manis, June 12).

VARIEGATED CUTWORM (Peridroma margaritosa) - NEBRASKA - General in alfalfa in southeastern counties. Considerable damage to second cutting. Tachina flies very active, eggs on 80 per cent of caterpillars in fields examined. (Roselle). MISSOURI - Heavy damage to alfalfa and red clover continues in northern third of State. Parasitism becoming heavy. (Kyd, Thomas).

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) - SOUTH DAKOTA - Up to 25 percent damage to new plantings in northern counties. (Halvorson, June 12).

APHIDS - NEW MEXICO - Injury to alfalfa in southern half of State declining somewhat; however, alfalfa in eastern area still supports fairly high populations. Heavy populations of cowpea aphid still found in Carlsbad-Artesia areas. (Dobson, June 12). ARIZONA - An aphid (*Therioaphis ononidis*, det. R. C. Dickson) has emerged as an important pest of alfalfa on Yuma Mesa. It feeds on lower side of leaves and produces copious amounts of honeydew which as been abundant enough to interfere with baling. On alfalfa seed fields leaves on lower half of plants are dropping. (Ariz. Coop. Rept.).

PEA APHID (*Macrosiphum pisi*) - CALIFORNIA - Serious injury to alfalfa in Kern County during May. (Coop. Ins. Pest Rept.). SOUTH DAKOTA - Up to 80 per 10 sweeps in alfalfa in northeast counties. (Halvorson, June 12). MINNESOTA - Counts approaching danger mark (2.5 per plant) in Blue Earth and Waseca Counties. (Minn. Ins. Rept. Serv.).

MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) - INDIANA - Adults appeared southern area first of June, Lafayette June 3. Very abundant northern counties June 11. (Davis). ILLINOIS - Adults average 13.6 per sweep in northeast, 1.5 in northwest and 1.0 in southwest. (Petty).

POTATO LEAFHOPPER (*Empoasca fabae*) - MISSOURI - Alfalfa, red clover and potatoes generally infested over much of State. Three to four adults per sweep in alfalfa in southeast. (Kyd, Thomas). ILLINOIS - From 0.4 to 5.0 adults per sweep in legumes; 0.2 nymphs in eastern section and 1.25 in northeast. (Petty). MARYLAND - Appearing in all areas, from 0.2 to 5 adults per sweep in several counties. (U. Md., Ent. Dept.). IOWA - Noticeably abundant in a wide variety of host plants. (Fronk).

LEAFHOPPERS - SOUTH DAKOTA - Up to 30, mostly six-spotted leafhoppers, per 10 sweeps in some alfalfa in northeast counties. As high as 45 six-spotted leafhoppers per 10 sweeps in wheat in Faulk County. (Halvorson, June 12). ARIZONA - *Carneocephala triguttata* severe in some Bermuda grass seed fields at Roll, June 10. (Ariz. Coop. Rept.).

LYGUS BUGS - SOUTH DAKOTA - Up to 30 nymphs per 10 sweeps in some fields in northeast counties. (Halvorson). Up to 100 nymphs per 10 sweeps in alfalfa in central area. (Severin, June 12). Two to 5 per sweep in southeast counties. (Halvorson). NEBRASKA - *Lygus lineolaris* very abundant in alfalfa in Lancaster County. (Hill). UTAH - Numerous to very numerous on alfalfa in Emery and Sanpete Counties. (Knowlton). NEW MEXICO - Infesting seed alfalfa in largest numbers ever recorded in Mesilla Valley; over 800 adults and nymphs per 100 sweeps. In most fields, nymphs in 5-3 ratio with adults. Some damage to cotton near alfalfa. (Dobson).

ALFALFA PLANT BUGS - NEBRASKA - *Adelphocoris lineolatus* very abundant in alfalfa in Lancaster County. (Hill). SOUTH DAKOTA - Average of 1 *A. lineolatus* per sweep in alfalfa in southeast counties. (Halvorson). IOWA - Adults of 2 species of *Adelphocoris* very abundant in alfalfa and red clover, 5 to 10 per sweep many areas. (Walstrom). MINNESOTA - *Adelphocoris* spp. continue to build up, 4-5 nymphs per sweep taken in Le Sueur County. (Minn. Ins. Rept. Serv.).

ALFALFA WEBWORM (*Loxostege commixtalis*) - WYOMING - Infestations fairly heavy in alfalfa fields in southwestern part of State. (Poyner).

ALFALFA WEEVIL (*Hypera postica*) - CALIFORNIA - Heavy emergence of adults late April in Modoc County; medium to heavy damage in Lassen County. (Coop. Ins. Pest Rept., May). WYOMING - Damage to alfalfa in southwestern area. Control satisfactory. (Poyner). UTAH - Larvae decreasing in abundance. (Knowlton).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - INDIANA - Infestations rather general; 95 percent of buds show damage in some cases. (Davis). ILLINOIS - From 0.6 per sweep in northeastern area to 2.5 in eastern. (Petty). MISSOURI - Light to moderate injury to red clover in east central area, 2 adults and 4-6 larvae per square foot. (Kyd, Thomas).

GREEN CLOVERWORM (*Plathypena scabra*) - MISSOURI - Light in alfalfa and soybeans in southeast; 1 larva per yard of row. (Kyd, Thomas).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MISSOURI - Average of 2-3 adults per foot of row in soybeans over much of extreme southeast area. Damage light. (Kyd, Thomas). MINNESOTA - Damage to soybeans in Blue Earth County apparently heavier than last year. (Minn. Ins. Rept. Serv.).

STINK BUGS - FLORIDA - *Solubea pugnax* and *Mormidea pictiventris* in considerable numbers on seed heads of grasses in Everglades area. *Proxys punctulatus*, *Thyanta* sp., and the predacious species *Stiretrus anchorago* and *Euthyrhynchus floridanus* building up. (Genung, Questel, Thames).

VETCH BRUCHID (*Bruchus brachialis*) - OREGON - Controls began June 14 in Willamette Valley. (Dickason). MISSOURI - Ten to 15 percent of fields of hairy vetch in southeast infested. (Kyd, Thomas

A SCARABAEID (*Aphodius pardalis* Lec.) - OREGON - The *Aphodius* sp reported in CEIR, Vol. 4, No. 19, p. 375 has been determined as this species by O. L. Cartwright. *A. pardalis* is also known from Linn, Columbia and Benton Counties in Oregon. (Roth).

SOUTHERN MASKED CHAFER (*Cyclocephala immaculata*) - NEBRASKA - Adult emergence underway. (Roselle).

MAY BEETLES - MICHIGAN - Heavy kills of *Phyllophaga fusca* from gypsy moth spraying about Lansing. (Hutson).

A RICE LEAF MINER (*Hydrellia griseola*) - CALIFORNIA - Light in Sacramento, Yolo and Colusa Counties. Very light in Fresno, Madera, Merced and Stanislaus Counties. Much fewer numbers than 1953 and no damage reported. (Coop. Ins. Pest Rept., May).

FRUIT INSECTS

CODLING MOTH (*Carpocapsa pomonella*) - NEW JERSEY - Apple growers in all sections should concentrate on codling moth control during next ten days. First-brood larvae active in central and southern areas. (Farley, June 17). WEST VIRGINIA - First-brood entries light in most orchards in Kearneyville area. (Hamstead). INDIANA - Heavy moth emergence from packing sheds at Orleans. (Marshall). ILLINOIS - First-brood attack about over in southern area. (Chandler). MISSOURI - Control very satisfactory in most areas. (Wkly. Rept. Fr. Grs.).

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - No unusual curculio damage to harvested peaches reported in Fort Valley area. (Snapp). TENNESSEE - New adults showing up. (Mullett). MICHIGAN- Very active at Northport, Traverse City and Acme June 11. (Hutson). MISSOURI - Populations low in most areas. (Wkly. Rept. Fr. Grs.). NEW YORK - Mature larvae in prune drops June 19 at Geneva. (Smith).

ORCHARD MITES - WEST VIRGINIA - European red mite (Metatetranychus ulmi) populations showed decided increase June 14 in Kearneyville area. (Hamstead). INDIANA - Eggs increasing in Orleans area. Predators unusually abundant. (Marshall). Tetranychus spp. have increased extensively in Vincennes area. European red mite high in a few apple orchards. (Hamilton). MISSOURI - Rapid buildup in Cape Girardeau area may be expected if weather conditions are favorable. (Wkly. Rept. Fr. Grs.). UTAH - Threatening numbers in many orchards. (Knowlton).

APHIDS - PENNSYLVANIA - Woolly apple aphid (Eriosoma lanigerum) heaviest in many years. (Pepper). WEST VIRGINIA - Aphis pomi infestations rather severe in Kearneyville area. (Hamstead). MASSACHUSETTS - Apple aphid building up on terminals and spurs. (Crop Pest Cont. Mess.). NEW YORK - Apple aphid continues to build up in Rockland County; more than usual in Columbia County; increasing rapidly in Orleans County. (Wkly. News. Lett.).

ROSE CHAFER (Macrodactylus subspinosus) - MICHIGAN - Have appeared at Lansing and other areas. (Hutson). RHODE ISLAND - Appearing on rose and grape in Providence and Newport Counties. (Hyland). NEW YORK - Active on peaches and home gardens in Monroe County. Heavy numbers attacking young sweet cherry orchard on sandy soil in Oswego County. (Wkly. News Lett.).

PEAR-SLUG (Caliroa cerasi) - IDAHO - Beginning to hatch in cherry orchards in southwestern area. (Manis, June 12).

WESTERN TUSSOCK MOTH (Hemerocampa vetusta) - CALIFORNIA - Light to severe damage to 63,000 acres of apricot, pear and prune orchards in Santa Clara County during May. (Coop. Ins. Pest Rept.).

PEACH TWIG BORER (Anarsia lineatella) - ARIZONA - Larvae common in ripening peaches at Mesa. (Ariz. Coop. Rept.).

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - Infestation on old leaves of citrus highest in 4 years; increasing rapidly on young leaves and fruit. Indications that problem will be unusually severe this summer. (Pratt, Thompson, Johnson).

CHERRY FRUITWORM (Grapholitha packardi) - MICHIGAN - Adults in full flight at South Haven, Covert, Grand Haven and Hartford, June 13. (Hutson).

DRIED-FRUIT BEETLE (Carpophilus hemipterus) - ARIZONA - Very numerous and causing considerable damage to peaches and plums at Mesa. (Ariz. Coop. Rept.).

CHERRY FRUIT FLY (Rhagoletis cingulata) - MICHIGAN - Have emerged at Shelby. (Hutson). NEW YORK - Emerging rapidly in Monroe County. First in cage June 18 in Wayne County, June 13 at Geneva. (Wkly. News Lett.).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Medium heavy on pecans in Bell County. Much damage by first generation. New adults emerging. (Hensen, Davis).

FALL WEBWORM (Hyphantria cunea) - LOUISIANA - Heavy infestation on pecan in Natchitoches, Rapides, Avoyelles and Pointe Coupee Parishes. (Burns, Newsom). MISSISSIPPI - First observed in Harrison County June 7. Webs fairly numerous June 19. (McGehee).

SPOTTED CUTWORM (Amathes c-nigrum) - CALIFORNIA - Severe damage to young citrus fruit in some Riverside County orchards. Light to heavy in San Bernardino citrus. (Coop. Ins. Pest Rept., May).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Pupae noted during week of May 24 in Geneva area. Population approximately 75 percent pupae June 4. First adults in flight June 9, when populations 85 percent pupae, 15 percent adults. Peak flight expected during week of June 28 in Newark, New York area. Flights in numerous locations in Newark area, June 14. (Tashiro, Gambrell).

TRUCK CROP INSECTS

CABBAGE MAGGOT (Hylemya brassicae) - SOUTH DAKOTA - Severe and widespread in radish, cabbage, and other crucifers in southeast part of State. (Severin, June 12). MINNESOTA - Damaged 3 percent of cabbage plants at Little Canada. (Minn. Ins. Rept. Serv.). NORTH CAROLINA - A 90 percent infestation of cabbage and radish in Henderson County. (Brett).

HARLEQUIN BUG (Murgantia histrionica) - NORTH CAROLINA - Activity on broccoli and collards beginning at Faison. (Brett). MISSOURI - Reported from various parts of State. (Wkly. Rept. Fr. Grow.).

CABBAGE CATERPILLARS - FLORIDA - The disease reducing cabbage looper (Trichoplusia ni) populations in the Everglades has been found to be a polyhedrosis virus by Section of Bee Culture and Biological Control, Entomological Research Branch. Southern armyworm, corn earworm, fall armyworm and salt-marsh caterpillar appear similarly affected but determinations of diseases of these larvae have not been received. The disease of cabbage loopers is particularly severe and populations are being greatly reduced. (Genung, Questel, Thames, June 11). TENNESSEE - Imported cabbageworm extremely abundant on cabbage. The plants in a 2-acre planting in Nashville area so heavily infested that they are unfit for human consumption. (Scott). MISSOURI - T. ni larvae damaging broccoli, cauliflower and cabbage in central third of State. Heavy damage to several curcifers by Pieris rapae over State. Plutella maculipennis damage to cabbage now becoming common over eastern half of southern part of State. Larvae and pupae present in central part of State. (Kyd, Thomas). MINNESOTA - P. maculipennis on cabbage at Little Canada (near Twin Cities). (Minn. Ins. Rept. Serv.). DELAWARE - Cabbage looper active near Felton. (Late News).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - CALIFORNIA - Noticeable damage to mustard seed fields in delta region of Sacramento County. Light to medium damage in Santa Cruz County. (Coop. Ins. Pest Rept., May).

ARTICHOKE PLUME MOTH (Platyptilia carduidactyla) - CALIFORNIA - In San Mateo County 40-50 percent of buds infested in April and 50-75 percent of buds infested in 1800 acres in May. Heavy damage in Santa Barbara County. (Coop. Ins. Pest Rept.).

PICKLEWORM (Diaphania nitidalis) - FLORIDA - Heavy infestation in late summer squash at Quincy. (May, Guthrie, June 11).

SQUASH BEETLE (Epilachna borealis) - NORTH CAROLINA - Eggs prevalent on squash at Faison. (Brett).

PALE-STRIPED FLEA BEETLE (Systena blanda) - DELAWARE - Active on watermelons and canteloups east of Dover. (Late News). NORTH CAROLINA - Widespread on tobacco in Yadkin County, but injury slight. (Scott).

LEAFHOPPERS - ARIZONA - Empoasca sp. seriously damaging foliage in some watermelon fields at Yuma, June 10. (Ariz. Coop. Rept.). NEW YORK - Active in larger numbers than usual at this time of season on beans and potatoes. (Leiby). In large numbers in Cayuga County where control not started. (O'Leary).

A FALSE CHINCH BUG (Nysius sp.) - CALIFORNIA - Extensive infestations in watermelon fields in Riverside County. (Coop. Ins. Pest Rept., May).

SPOTTED AND STRIPED CUCUMBER BEETLES - MISSOURI - Cantaloups and watermelons heavily attacked by both species over southern half of State. (Kyd, Thomas). DELAWARE - Both species attacking cucumbers at Felton. (Late News).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - SOUTH DAKOTA - Severely damaging untreated cucurbits. (Spawn, June 12). TENNESSEE - Lightly damaging summer squash in Clarksville area. (Scott). MICHIGAN - Numerous at Jackson, Benton Harbor and Sodus. (Hutson).

BEAN LEAF BEETLE (Cerotoma trifurcata) - LOUISIANA - Serious infestation in one field of peas in St. Landry Parish. (Burns). TENNESSEE - Abundant and causing moderate injury to snap beans, in Clarksville area. (Scott).

SEED-CORN MAGGOT (Hylemya cilicrura) - CALIFORNIA - Heavy damage to blackeye and snap beans on 100 acres in Los Angeles County even though seed was treated. Cotyledons and sprouts damaged. (Coop. Ins. Pest Rept., May). IDAHO - Destroyed field of bean seed before plants emerged. In some cases, as many as 16 maggots per bean found. (Douglass). MICHIGAN - Damaging cantaloup and cucumber seedlings at Stanton, Plymouth and Pontiac. (Hutson). NEW YORK - Three acres of potatoes completely destroyed. Estimate of 15--200 maggots per seed piece, in Steuben County. (Nichols).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NEW YORK - Causing injury in Rockland County. (Clark). NORTH CAROLINA - In Henderson County 118 egg masses and about 80 adults per 100 foot of row on snap beans. (Brett). GEORGIA - Unusually heavy infestation of adults on beans in Union County, June 1-9. (Taylor). TENNESSEE - Scarce in Clarksville area. (Scott). MISSOURI - Light on beans in central section. (Kyd, Thomas). COLORADO - Appeared June 14 at Fort Collins. (Colo. Ins. Det. Comm.). UTAH - Retarded in northern areas this spring due to weather. Some injury now occurring. (Knowlton).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - RHODE ISLAND - Light infestation in Newport County. (Hyland). NEW YORK- Larvae appearing in Wayne County. (Pease). DELAWARE - Present generally on potatoes but more common south of Dover. (Late News). NORTH CAROLINA - Second generation on eggplant at Faison doing considerable damage. (Brett, Reid). TENNESSEE - Scarce in Clarksville area. (Scott). MICHIGAN - Troublesome on tomatoes at Sodus, Baroda and Dundee. (Hutson). MINNESOTA - Caused 50-100 percent defoliation of eggplant transplants on a farm near Little Canada. (Minn. Ins. Rept. Serv.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Found as follows: 1-6 per 20 sweeps at Little Canada on potatoes, 5-20 per sweep on lettuce, 23 per 20 sweeps on onions at Castle Rock, 19 per 20 sweeps on early celery at South St. Paul, 5 to 11 per 20 sweeps on later celery. Also found on carrots. Not known if these leafhoppers are viruliferous to date. (Minn. Ins. Rept. Serv.).

POTATO TUBERWORM (Gnorimoschema operculella) - CALIFORNIA - Serious damage to potatoes in parts of Kern County, heavy infestations in San Bernardino County. (Coop. Ins. Pest Rept., May).

FLEA BEETLES - NEW YORK - From 2 to 10 beetles on young tomato plants, nearly killing plants. (Leiby). Building up on tomatoes in Rockland County. (Clark). In large numbers in Cayuga County where control not started. (O'Leary). Population high on potatoes in Steuben County. (Nichols). MINNESOTA - Light injury to cabbage at Hollandale; three to 5 per 20 sweeps at Castle Rock. Populations averaged between 7-41 beetles per 20 sweeps on potatoes at Hollandale and 10-35 per 20 sweeps at Little Canada on potatoes. (Minn. Ins. Rept. Serv.). PENNSYLVANIA - Generally abundant on many crops. (Pepper).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - On June 3 averaged 4 per 100 sweeps in Greeley district, 15 in Arkansas Valley, 3 at Salida, and 7 in Grand Junction area. (Wallis). UTAH - Populations on Lycium in northern area (Provo to Logan) were small on June 3 and have shown no increase in past 2 weeks. Average of 2 per 100 sweeps in northern Utah and 8 at Green River. (Knowlton).

POTATO LEAFHOPPER (Empoasca fabae) - SOUTH DAKOTA - Common on potato in eastern area. (Severin, June 12). DELAWARE - Present generally on potatoes, but more commonly south of Dover. (Late News). TENNESSEE - Small numbers infesting Irish potato and snap beans in Clarksville area. (Scott).

APHIDS - MISSOURI - On tomatoes from Kansas City and St. Louis areas. (Wkly. Rept. Fr. Grow.). NEW YORK - In most tomato fields, also found on peppers in threatening numbers. (Leiby). Serious on cabbage in Rockland County. (Clark).

TOMATO FRUITWORM (Heliothis armigera) - ARKANSAS - Heavy in tomato fields inadequately treated in southeast section. (Barnes, Warren).

POTATO FLEA BEETLE (Epitrix cucumeris) - RHODE ISLAND - Continuing to damage tomatoes, beans and potatoes throughout State. More abundant than usual in some areas. (Hyland).

BLISTER BEETLES (Epicauta sp.) - TEXAS - Heavy on tomatoes in Hill and Washington Counties. Stripping leaves off tomato plants in several fields. (Martin, Clark, Davis).

SOUTHERN GREEN STINK BUG (Nezara viridula) - TEXAS - Heavy on tomatoes in Cherokee County. From 10 to 100 percent of ripening fruit damaged in tomato yield test. Worse damage in years. (Young).

A STRIPED BLISTER BEETLE (Epicauta sp.) - GEORGIA - Damaging tomatoes, potatoes and beans in Spalding County and potatoes in Fayette County, June 7, 11. (Beckham, Dupree).

HORNWORMS (Protoparce spp.) - DELAWARE - Eggs found on tomatoes. (Late News). NORTH CAROLINA - A survey of northeastern counties indicated an average of 1 egg per 25 tobacco plants, but in southeastern part the average is about 1 to each 100 plants. Few larvae found. (Mitchell). FLORIDA - Eggs and larvae on eggplant near Lake Worth. Average of about 6 larvae per plant. (Genung, Questel, Thames, June 11). INDIANA - First appearance of adults at lights in Posey County, May 25. (Davis). TENNESSEE - Infesting tobacco in small numbers in the Clarksville area. (Scott).

MITES ON TOBACCO - TENNESSEE - An unidentified species of mite infesting and destroying tobacco plants in one field in Washington County. Soil around plants also infested. (Mullett).

GREEN PEACH APHID (Myzus persicae) - NORTH CAROLINA - About 20 percent of tobacco plants infested in most fields surveyed. Populations light and seem to be decreasing, primarily due to natural enemies. (Mitchell). TENNESSEE - Infestation increasing slowly on tobacco. High temperatures retarding development of aphids, in Clarksville area. (Scott). FLORIDA - Nymphs and adults averaged 10 to 200 on 7 percent of tobacco plants in a 4-acre field at Mayo. (Van Pelt, June 11).

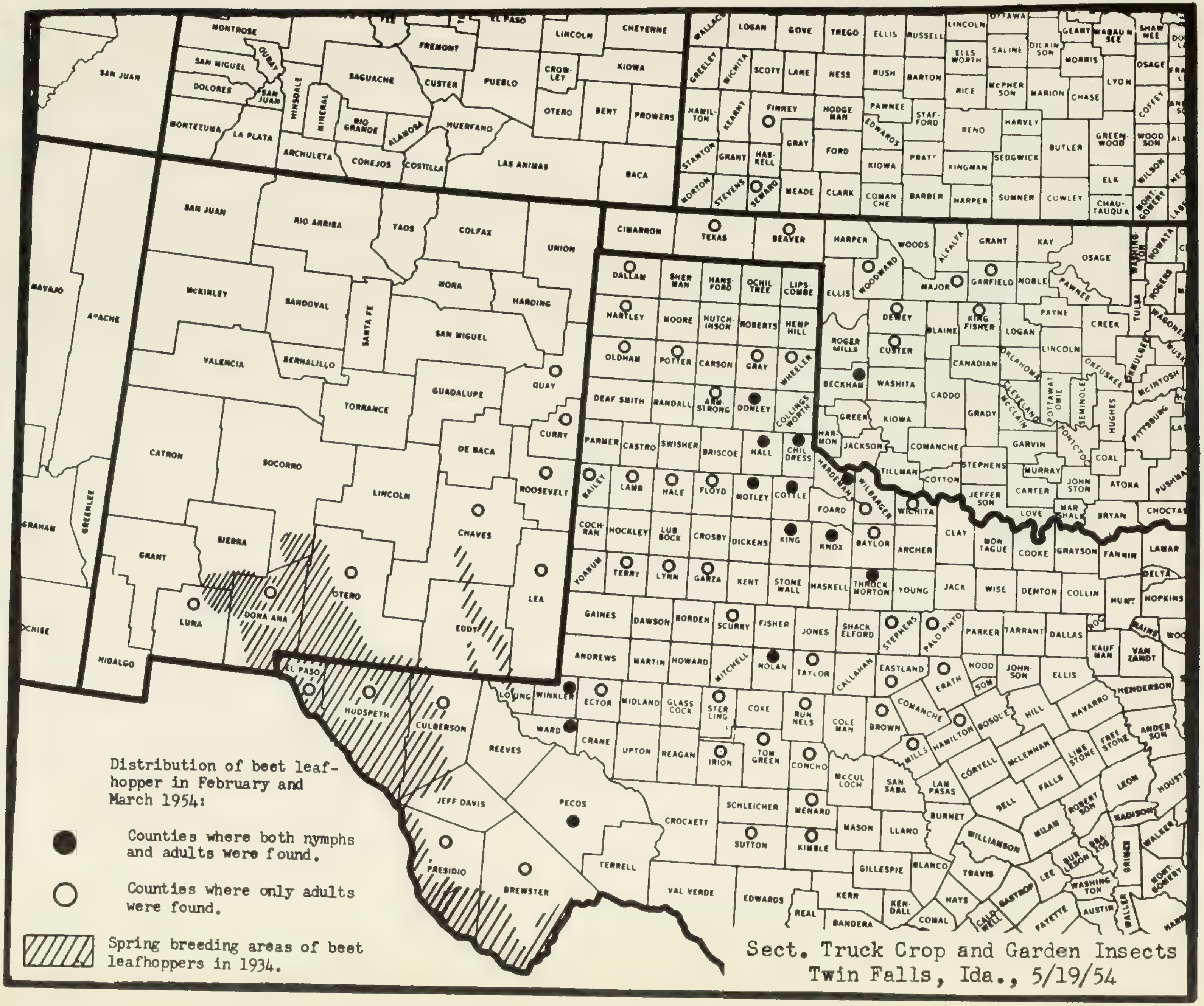
JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - In tobacco in Sampson County but no serious injury evident. Damaging vegetable crops and ornamentals in Beaufort, Davidson, Duplin, Pamlico, Polk, Sampson and Wilson Counties. (Mitchell). GEORGIA - First adult of season in trap in north Atlanta, May 24. (Blasingame).

TOBACCO BUDWORMS (Heliothis spp.) - NORTH CAROLINA - Some injury from earlier activity in northeastern counties, but few larvae found . Average of about 1 larva per 40 plants in southeastern area. (Mitchell). GEORGIA - Five and 7 eggs per tobacco flower cluster in Bullock County in two fields, June 3. Larvae in approximately 10 percent of plants. (Vanderford). FLORIDA - Averaged 3 to 5 eggs per plant on tobacco with unopened buds in a 4-acre field; 5 eggs and 3 larvae per plant in a 3-acre field at Mayo. (Van Pelt, June 11). TENNESSEE - Damaging tobacco in Clarksville area. Infestation on burley averages 1.25 larvae per plant. Average for dark-fire-cured tobacco is about one half larva per plant. (Scott). KENTUCKY - Heavily damaging tobacco in southwestern section. (Price).

Beet Leafhopper Conditions in Eastern New Mexico Northwestern Texas, and Western Oklahoma

In 1953, an epidemic of curly top, a virus disease transmitted by the beet leafhopper, occurred on sugar beets in southwestern Kansas. Since this disease resulted in considerable reduction in yield of sugar beets, requests were received from the sugar-beet industry to make an investigation to determine the source of the beet leafhoppers that infested the area and to determine if a similar invasion could be expected in 1954. Studies of the beet leafhopper in the Southwest, made from 1928 to 1937, are reported in Department Circular No. 518. These studies showed that the spring breeding areas of this leafhopper were then confined to southern New Mexico and southwestern Texas. (See attached map). Further studies of these areas during the period February 16 to March 8, 1954, showed that there were very few-weed-host plants of the beet leafhopper produced in southern New Mexico and southwestern Texas in 1953. It thus appears that the migrant leafhoppers that invaded Kansas did not come from this area. The 1954 study was extended to cover the Edwards Plateau and the shortgrass plains region of eastern New Mexico, western Oklahoma, northwestern Texas, and as far east as the 98th parallel. Beet leafhoppers were found there, practically wherever desirable weed-host plants occurred. Nymphs occurred as far north as Sayre, Oklahoma, and the oldest ones found were in the fourth instar, which shows that the leafhoppers had been breeding during the winter. The distribution of the beet leafhopper as determined from this study is also shown on the attached map.

The studies conducted in February and March 1954 indicate that, because of the prolonged drought and warm winters, the spring breeding areas of the beet leafhopper known to have existed during the period 1928 to 1937 have been extended to the southern Great Plains. Whether this apparent shift can be considered permanent or temporary cannot be anticipated at this time. Russian-thistle, the most important summer weed host of this insect, is well distributed over the southern Great Plains. In certain sections of that area, the occurrence of old stalks of the spring weed-host plants would indicate that these were more abundant and widely distributed in 1953 than in early 1954. This would indicate that the 1953 outbreak of beet leafhoppers was produced on the rolling and high plains of New Mexico, Oklahoma, and Texas in territory farther north and east than previously recorded.



Distribution of beet leafhopper in February and March 1954:

● Counties where both nymphs and adults were found.

○ Counties where only adults were found.

▨ Spring breeding areas of beet leafhoppers in 1934.

Sect. Truck Crop and Garden Insects
Twin Falls, Ida., 5/19/54

The beet leafhopper conditions in eastern New Mexico, western Oklahoma, and northwestern Texas as of February and March 1954 may be summarized as follows: A low population of overwintered adults and spring nymphs of beet leafhoppers were found widely distributed. Because of the drought, the spring weed-host plants occurred only in the most favorable situations. The magnitude of the population of spring migrants that may move out of these areas during the spring of 1954 will probably be very much smaller than that of the spring movement northward into southwestern Kansas in 1953. (J. R. Douglass).

ONION MAGGOT (Hylemya antiqua) - IDAHO - Common in inadequately treated onion fields. (Walz). UTAH - Damaged a number of untreated onions this spring. Injury noted at Logan, Delta, Slaterville and Randolph recently. (Knowlton). MINNESOTA - Damage slight in onion plots where control carried out earlier. Three to 10 percent injury in untreated plots. Nearly full grown larvae at Little Canada. (Minn. Ins. Rept. Serv.).

A SWEETPOTATO BEETLE (Agroiconota bivittata) - LOUISIANA - Considerable foliage damage in Jeff Davis and Avoyelles Parishes. (Burns, Cockerham).

BEET LEAFHOPPER - COLORADO - At Grand Junction average 0.7 per square foot of beet row--the same as in 1953. Movement probably completed. (Dorst; June 2).

SALT-MARSH CATERPILLAR (Estigmene acrea) - DELAWARE - Active near Felton. (Late News).

SPITTLE BUGS - RHODE ISLAND - Generally abundant this year and especially on strawberries. (Hyland).

STRAWBERRY ROOT WEEVILS (Brachyrhinus spp.) - OREGON - Emerging since May 19. Appearing in greater numbers than normal in inadequately treated fields (Every). UTAH - Damage severe in some strawberry patches in Weber and Davis Counties this spring. (Knowlton).

CORRECTION: The earwig reported in C.E.I.R. No. 23, p. 486, June 11, as Anisolabis maritima has been determined as Eurborellia cincticollis by A. B. Gurney. (Ariz. Coop. Rept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Average 3.7 adults per 100 plants in all counties surveyed, ranging from 0 in Davie County to 10 in Warren County. Square infestations of 18 percent in southern part of State, some up to 36 percent. (Jones). SOUTH CAROLINA - Forty-three treated fields examined in 11 counties showed 41 infested with average square infestation of seven percent. Sixty-seven untreated fields examined in 12 counties showed 66 infested at rate of 13 percent compared with 38 percent for corresponding week in 1953. (Walker, Blocker). GEORGIA - Of 100 fields examined in 21 counties (mostly South Georgia), all found infested. Average of 211.1 weevils per acre in 10 untreated fields and 258.8 weevils per acre in two treated fields. Average percent punctured squares in 55 untreated fields 19.5, last week 10.8, last year 24.5 (corresponding week). Average percent punctured squares in treated fields 12.3, last week 5.4, last year 14.6. Increase in population believed due to increased emergence from hibernation and emergence of first-generation weevils in many southern counties. (J.C. and C.R. Jordan, et al). MISSISSIPPI - Of 316 non-fruiting cotton fields examined in 16 delta counties, 90 found infested at rate of 146.7 for infested fields, 41.8 all fields. Last year when 1096 fields were inspected 103 found to have weevils at average rate of 99 per acre. Of 62 fruiting fields inspected in 12 delta counties, 62 found infested with average square infestation of 15 percent. Last year 269 fruiting fields had average square infestation 5.7 percent. (Dunnam et al). LOUISIANA - Activity increasing in older cotton in central and southwestern areas. Average square infestations in fields examined include: St. Landry Parish 7.5 percent, Pointe Coupee Parish 28.6 percent, Tensas Parish 18 percent, Rapides Parish 4 percent, and Avoyelles Parish 36 percent. (Burns, Roussel). Infestations generally heavy, about 500 per acre in non-squaring fields. (Smith). Average of 323 weevils per acre in 83 fields examined in Madison Parish. Fifty-one per acre found during same period in 1953. Overwintered weevils found in 56 of 93 fields examined in northern area, with highest populations in Tensas, Concordia and Catahoula Parishes. (Gaines, et al). ALABAMA - Present in all fields in Talladega, Chambers, Houston and Henry Counties, numerous in many. Twenty-three fields examined in 6 southwest counties and 22 found infested. Average square infestation in infested fields 20.3 percent. (Ruffin, Marsh). ARKANSAS - Infestations generally light with heavier infestations in southwest area. (Barnes, Warren). TEXAS - Continued to increase in lower Valley with migration in some localities. Continues light in Coastal Bend area but increases in some counties of southwest, Upper Coastal and south central areas. Injurious infestation in untreated fields in central and east Texas and first-generation weevils as far north as McLennan County. The overwintered populations continue heavy in many untreated fields in east, central, north central and northeast areas. The boll weevil population in all areas where the insect occurs and in which plant inspections were made averaged 150 per acre in 232 untreated fields and 30 per acre in 235 treated fields. (Parencia et al). OKLAHOMA - Number of weevils per acre remains low. Of 69 fields examined by scouts in 12 counties only 5 found infested. (Stiles).

BOLLWORMS (Heliothis spp. et al) - SOUTH CAROLINA - Average of 5.5 eggs per 100 terminals in 15 fields examined. (Walker, Blocker). GEORGIA - Average of 0.2 percent injured squares in untreated fields and .06 percent in treated fields. (J. C. and C. R. Jordan). ALABAMA - Found in 22 of 23 fields examined in 6 southwest counties. Number of eggs per 100 terminals in infested fields 5.1. (Marsh, Ruffin). ARKANSAS - Some infestations heavy in older fields, as high as 5 to 100 terminals. Natural control should reduce population. (Warren, Barnes). MISSISSIPPI - Average of 2.3 eggs per 100 terminals in 61 fields. Larvae in 23 fields. (Dunnam et al). TEXAS - Injurious infestations in scattered fields in lower Valley and light infestation in southwest and Coastal Bend areas. Increase in eggs in some fields in upper Coastal area. (Parencia et al). ARIZONA - Appearing many fields in Yuma area, particularly in stub cotton. Three to 4 small larvae per plant. (Ariz. Coop. Rept., June 12).

PINK BOLL WORM (Pectinophora gossypiella) - TEXAS - Some increase in lower Valley but infestation generally light. Infestations being found in blooms in many fields from upper Coastal area as far north as McLennan County. Bloom inspections in McLennan and Falls Counties indicate a light general infestation in about one half of early-blooming fields inspected; however, initial infestations in these counties are considerably heavier and more general than in past years (first infestations found in 1950). (Parencia et al).

GRASSHOPPERS - OKLAHOMA - Causing more damage to cotton than any one insect at present. (Stiles). TEXAS - Migrating to cotton from uncultivated areas in increasing numbers in some fields in scattered counties east of a line extending from DeWitt County through Tarrant County. Damage in a few fields in northwest and Plains areas. (Parencia et al).

APHIDS - GEORGIA - Aphids, probably Anuraphis maidi-radicis, reduced stand about one-third on 15-acre field. (Alden). MISSOURI - Aphid gossypii very light in a few fields; 8-20 per plant. Predation and parasitism high. (Kyd, Thomas). TEXAS - Generally light. Injurious in a very few fields in most areas. (Parencia et al).

WHITEFLIES - ARIZONA - Continue high in part of Safford area, mostly adults and eggs. (Ariz. Coop. Rept., June 12).

THRIPS - NORTH CAROLINA - Some injury to cotton in Cleveland, Gaston and Union Counties, but plants growing out of damage. (Gast). MISSISSIPPI - Of 378 fields inspected, thrips light in 138, medium in 84, heavy in 24. (Dunnam et al). ARKANSAS - Decreasing in many fields. (Barnes, Warren). TEXAS - Injurious infestations continue in late-planted untreated fields in central and eastern areas and in high percentage of untreated fields in north central and northeast areas. Increases in western areas with injurious infestation in scattered fields in Cross Timbers, Northwest and Plains areas. (Parencia et al). ARIZONA - Continue predominating insect pests of cotton in Cochise and Graham Counties, averaging 2 to 3 per plant. (Ariz. Coop. Rept., June 12).

SPIDER MITES - CALIFORNIA - Medium damage to cotton in Riverside County during May. (Coop. Ins. Pest Rept.). GEORGIA - Beginning to show up many fields June 10. (Morgan). ARKANSAS - Tetranychus sp. general in some areas but mostly spotty, a few fields in upper Arkansas Valley generally infested. Predators increasing rapidly. (Barnes, Warren). ARIZONA - Two-spotted spider mite fairly heavy (10 per leaf avg.) in two fields in Cochise County, June 12. (Ariz. Coop. Rept.). TEXAS - Injurious in scattered fields in southern area. (Parencia et al).

COTTON FLEAHOPPER (Psallus seriatus) - ALABAMA - Light in southwest counties. (Marsh Ruffin). MISSISSIPPI - Light in 50 fields, medium in 15, and heavy in 2. (Dunnam et al). TEXAS - Injurious infestations in occasional late-planted field in lower Valley, and in occasional field in upper Coastal area. Light in southwest and Coastal Bend areas. Elsewhere general increase in populations with injurious infestation in scattered fields from south central area northward. (Parencia et al).

PLANT BUGS - MISSISSIPPI - Tarnished plant bug light in 27 fields, medium in 10, heavy in 2. (Dunnam et al). ARIZONA - Average of 2 to 20 (Lygus and Rhinacloa sp.) per 100 sweeps on cotton in Maricopa County, some fields treated. High of 52 per 100 sweeps in one field at Buckeye. Lygus populations generally low in Yuma County. (Ariz. Coop. Rept., June 12). CALIFORNIA - Medium damage to cotton by lygus in Imperial County during May. (Coop. Ins. Pest Rept.).

OTHER FIBER PLANT INSECTS

Conchuela found on flax in Coastal Bend Area of Texas - In investigations recently initiated to determine the amount of damage caused to flax by various insects, T. P. Cassidy reports that he has found the conchuela (*Chlorochroa ligata*) causing some damage to the crop in Calhoun County, Texas. This record is of considerable interest since the insect is rarely known to occur in that area. The conchuela causes much damage to cotton in the Laguna area of Mexico and northward and westward to Southwestern Texas. (Sect. Ins. Aff. Cotton and Other Fiber Plants).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

TENT CATERPILLARS - SOUTH DAKOTA - Forest tent fairly common in Roberts County. (Severin, June 12). Eastern tent damaging shelterbelt trees in northern counties. (Lofgren, June 12). MINNESOTA - Forest tent caterpillars mainly fourth instars in west central area June 18. Defoliation not noticeable in western area. A parasite (*Sarcophaga aldrichi*) very abundant in northern areas. (Minn. Ins. Rept. Serv.). WISCONSIN - Forest tent caterpillar continues extremely destructive in 8 northwestern counties. Larvae crawling over roads and private yards destroying foliage of many plants. Enormous swarms of parasitic flies, larvaevorids and sarcophagids, feeding on larvae very annoying in many places in the infested area. (Chambers). COLORADO - Numbers of egg masses and developing tents indicate a severe defoliation of aspen in southern area again in 1954 by *M. fragilis*. (Knight).

PINE NEEDLE SCALE (*Phenacaspis pinifoliae*) - SOUTH DAKOTA - Has become exceedingly abundant on pines and spruces over much of State. Considerable damage to trees grown for shade, windbreaks or ornamentals. (June 2). Hatching June 12. (Severin). More inquiries than usual from many points in COLORADO, WYOMING, and SOUTH DAKOTA. (Knight).

IPS and TURPENTINE BEETLES - TEXAS - Heavy widespread on shortleaf pine in Newton County. (Fulmer).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - MISSOURI - Drought-injured elms severely infested over much of southwest area from Kansas City to Arkansas border. (Kyd, Thomas).

FALL WEBWORM (*Hyphantria cunea*) - ARKANSAS - First webs in St. Francis County. (Warren, Barnes).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - PENNSYLVANIA - Beginning to emerge in western area. (Udine).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - OHIO - Severe defoliation of red, mugho, scotch and Austrian pine in forest plantings of northern and central areas occurred in late May and early June. (Parks, Goleman).

BAGWORM (Thyridopteryx ephemeraeformis) - MISSOURI - Heavy hatch over southern half of State. (Kyd, Thomas).

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) - COLORADO - Killing trees in an epidemic on San Juan National Forest. Counts of killed trees indicated approximately a 2. 5 to 1 increase between 1952 and 1953. (Knight).

EUROPEAN EARWIG (Forficula auricularia) - RHODE ISLAND - Very abundant. Attacking rose, hollyhocks and other ornamentals in Newport County. Also appearing along west side of Narragansett Bay. (Hyland).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - COLORADO - Serious infestation on lilacs in Loveland. (Knight).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Infestations on gray birch very heavy. Nearly 100 percent of leaves attacked on some trees. (Hyland).

JUNIPER SCALE (Diaspis carueli) - MICHIGAN - Hatching at Lansing Kalamazoo and Detroit. (Hutson). RHODE ISLAND - Medium to heavy in nurseries throughout State. (Mathewson).

SPIDER MITES - ARIZONA - Considerable damage to ash in Phoenix vicinity. (Ariz. Coop. Rept.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - IDAHO - Larvae abundant on elms not treated in southwestern area. (Walz, June 12). INDIANA - Widespread injury to Chinese elm in Vincennes area. (Hamilton). NORTH CAROLINA - Damaging elms in Alamance, Forsyth, Harnett and Wake Counties. (Mitchell). RHODE ISLAND - Apparently population lower than usual. (Mathewson). MISSOURI - New adults beginning to emerge in southeast. (Kyd, Thomas).

AN ASH MIRID (*Neoborus illitus*) - CALIFORNIA - Severe damage to ash in Calaveras County. Light in Glenn County. (Coop. Ins. Pest Rept., May). ARIZONA - Found quite generally on ash in Phoenix vicinity. (Ariz. Coop. Rept.).

PINE TORTOISE SCALE (*Toumeyella numismaticum*) - MICHIGAN - Troublesome on Scotch pine at Romeo. (Hutson).

COTTONY MAPLE SCALE (*Pulvinaria vitis*) - IDAHO - Common on maples throughout southwestern area. (Walz, June 12).

A FROGHOPPER (*Tomas bicincta*) - GEORGIA - Damaging foliage in commercial holly orchards, Lee County, May 27. (Osburn).

INSECTS AFFECTING MAN AND ANIMALS

LONE STAR TICK (*Amblyomma americanum*) - MISSOURI - Cattle in south central and southwest areas moderately to heavily infested. Humans also being annoyed. More cases of tick transmitted tularemia reported than in 1953. (Kyd, Thomas, June 11).

HORN FLY (*Siphona irritans*) - UTAH - Increasing on cattle though slowed by weather. (Knowlton). TEXAS - Heavy widespread on cattle in Dickens area. (Taylor). KANSAS - From 65 to 100 per animal. (Matthew). IOWA - Exceeding pestiferous in some areas. (Raun).

STABLE FLY (*Stomoxys calcitrans*) - KANSAS - Average 20 per animal. (Matthew).

HOUSE FLY (*Musca domestica*) - KANSAS - Populations generally on rapid increase due to high temperatures. From 25 to 300 per square yard in some barns of Riley County. (Matthew).

TABANIDS (*Chrysops* sp.) - ARKANSAS - Numerous along Illinois River, Washington County. (Barnes, Warren).

BLACK FLIES (*Simulium* spp.) - SOUTH DAKOTA - Continue to be annoying in eastern counties. (Lofgren).

CATTLE GRUBS - SOUTH DAKOTA - Heel flies running cattle in central counties. (Lofgren, June 12).

SCREW-WORM (Callitroga hominivorax) - TEXAS - Heaviest infestation in livestock for time of year than for several years in Callahan County. (Green, Davis). Light local in Dickens. (Taylor). GEORGIA - Infestation in calf in Lincoln County, May 1. (McGee).

MOSQUITOES - IOWA - At maximum in yards, gardens and picnic areas. (Raun).

DOG FLEA (Ctenocephalides canis) - FLORIDA - Very heavy infestations around residences in Gadsden County. (May, Guthrie).

A CONENOSE (Triatoma gerstaeckeri) - TEXAS - Light local numbers attacking humans in Caldwell County. (Brown).

STORED PRODUCT INSECTS

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - TEXAS - Heavy widespread infestation in last year's oats in Rockwall County. (Garner).

MISCELLANEOUS INSECTS

TERMITES - WISCONSIN - Until recently only a few scattered reports of termite damage recorded in State, but in past week three large old buildings in Milwaukee have been found heavily infested. (Chambers).

CARPENTER ANTS (Camponotus herculaneus var. pennsylvanicus) - NEBRASKA - Abundant in dwellings of southeast Nebraska. (Roselle).

RECENT IMPORTANT INTERCEPTIONS AT PORTS OF ENTRY

Living larvae of the Mediterranean fruit fly, Ceratitis capitata, were intercepted on numerous occasions in recent months in fruit from foreign countries at various ports: at Baltimore, Md., in oranges from Portugal (Faulkner, Johnston); at Boston, Mass., in grapefruit and oranges from the Canary Islands (Hodson) and in tangerines from Portugal and Italy (Hodson, Lantz, Crump, Jones); at Honolulu, T. H., in coffee berries and oranges from Hawaii (Androus, Hardy, Woolford); at New York, N. Y., in quinces from Greece (Friedman, Roundabush), in oranges from Brazil and Italy (Wehrle, Chapman) and in tangerines from Algeria and Italy (Trafford, Amyx, Fowler, Davis); at Philadelphia, Pennslyvania in tangerines from Portugal (McConnell); at New Orleans, La., in guavas from South Africa (Cook); and at Port Arthur, Tex., in oranges from Spain. (Baskin).

Living larvae, identified as Sp. of Tephritidae, probably *Ceratitis capitata* were also intercepted recently in oranges from Algeria at Baltimore, Md., (Johnston) and Boston, Mass. (Hodson); in grapefruit from Italy and Spain at Philadelphia, Pa. (Boeshore, Kennelty); in tangerines from Lebanon at Philadelphia, Pa. (Kennelty); and in coffee berries from Brazil at New York (Smith).

ADDITIONAL NOTES

OKLAHOMA - WEBWORMS reported in alfalfa and cotton near Hollis. (Bower). TARNISHED PLANT BUG decreasing somewhat in alfalfa. GREEN CLOVERWORM very abundant. POTATO LEAFHOPPER causing no conern in alfalfa. LESSER MIGRATORY GRASSHOPPER numerous in vetch, alfalfa and other crops. (Fenton). Small numbers of SOUTHWESTERN CORN BORER eggs in Payne County; 80 percent parasitized. CORN EARWORM damage intensive. (Hensley). Various species of GRASSHOPPERS reported in damaging numbers from all parts of the State. (Stiles).

MARYLAND - MEADOW SPITTLEBUG adults numerous in alfalfa. From 0.13 to 5.3 POTATO LEAFHOPPER adults per sweep in alfalfa, Washington to Calvert County. GRASSHOPPERS beginning to build up in alfalfa; 6 nymphs per sweep in Washington County. BLACK CUTWORM damaging corn in Kent County. TOBACCO FLEA BEETLE damaging newly-set tobacco in Calvert County. HORNWORM damage appearing, 0 to 2 per tobacco plant, Calvert County. JAPANESE BEETLE appearing in southern Maryland and College Park area, June 18. KERMES SCALE infesting white oak Montgomery County. POTATO LEAFHOPPER causing "hopper burn" on potatoes in Montgomery County. MIMOSA WEBWORM eggs numerous on mimosa in Montgomery County. (U. Md., Ent. Dept.).

WASHINGTON - WESTERN TENT CATERPILLAR and FOREST TENT CATERPILLAR particularly abundant in western area. (Telford). WHEAT STEM MAGGOT causing moderate damage to wheat near Walla Walla. (Telford). Subnormal temperatures for three weeks have kept

CODLING MOTH activity to minimum at Yakima; only 19 moths taken in 5 baits during that time. (Newcomer). No ORIENTAL FRUIT MOTHS taken in baits since May 19. (Yothers).

SOUTH CAROLINA - CHINCH BUG moderate on older corn at Lancaster. Serious on 7 acres of corn at Dillon. Heavy on pastures in upper Chesterfield County. BILLBUG damage greater than average in Dillon County. HORNWORMS hard to find in Horry County. (Nettles).

WISCONSIN - PEA APHIDS quite heavy in some pea fields, especially in southern area where migration from alfalfa fields occurred. GRASSHOPPERS continue to hatch in large numbers, exceeding 400 per square yard in some areas of Oconto County. POTATO LEAFHOPPER has been building up on beans and alfalfa. Beginning to show up on potatoes in considerable numbers. EUROPEAN CORN BORER egg-laying in many sections, some hatching. SOD WEBWORMS reported causing extensive damage; more than 50 percent of plants destroyed in one large corn field in Oconto County. SPOTTED CUCUMBER BEETLE and STRIPED CUCUMBER BEETLE unusually abundant and very destructive to cucurbits. PAINTED-LADY very abundant on Canadian thistle in southern area. ROSE CHAFER appearing in Monroe, Wood, Marathon and Manitowoc Counties. A SCARABAEID (*Strigoderma arboricola*) very abundant in north central area where it has proven to be serious pest to some cranberry bogs. (Chambers).

Status of Khapra Beetle in Western States
Spring 1954

Reported by L. J. Padget

The khapra beetle (Trogoderma granarium) a native of India, Ceylon and Malaya was found infesting grain in central San Joaquin Valley of California in November, 1953. Although this insect had been intercepted a number of times in quarantine, its discovery in warehouses at Alpaugh and Angiola in Tulare County, California, represents the first known infestations on the North American Continent. In attempting to trace the origin of these infestations and to determine, if possible, the manner in which the insect had gained entry into this country, the California State Department of Agriculture developed information that would indicate it may have been present in the San Joaquin Valley as early as 1946.

The J. B. Hill Warehouse Company near Fresno first noticed damage to stored grain by an insect identified by their commercial pest control operator as the black carpet beetle. Despite control measures, including fumigation, that were applied in an effort to control this insect by 1949 it had increased to astronomical proportions, and some 300 tons of grain in the warehouse at that time was a total loss. In 1949 the Company abandoned this warehouse as far as grain storage was concerned. After the warehouse was emptied the interior of the building was gone over carefully with a blow torch and a residual spray applied. Used sacks from this warehouse, however, were moved to Alpaugh and Angiola where they were filled with grain and used as bulkheads between piles of loose grain. This seems to adequately account for these two infestations, for upon inspecting the Hill warehouse in Fresno, cast skins and dead adults were recovered which were later determined as Trogoderma granarium. The manner by which the insect reached Fresno, however, has not been determined.

On November 20, 1953, the discovery of this insect in California was reported in the Cooperative Economic Insect Report. On the following December 18 an item appeared in the report to the effect that dermestid larvae were numerous in a grain warehouse at Phoenix, Arizona. This report was investigated by the office of the State Entomologist, and the specimens were identified as the khapra beetle, thus authentically establishing the presence of the insect in that State.

All available literature was reviewed and correspondence with entomologists in countries in which infestations were known to exist was begun by both Federal and State workers to develop information that would be of assistance in controlling this pest. Some pertinent facts that were developed are as follows:

1. In every country in which this insect is known to occur, it is ranked as one of the most serious pests of stored grain and grain products.

2. The life cycle is completed in from 35 to 100 days depending on temperature; 85°-90°F. is optimum.

3. The insect prefers warm dry weather; development is normal in grain with a moisture content as low as 2 percent, yet it will stand some freezing and is a serious pest in malting bins in England.

4. There are five instars in the development of the larvae and the cast skin is shed following each instar.

5. Each female lays an average of 120 eggs, and the larvae have been known to live for three years or more without food.

6. The larvae are cosmopolitan feeders attacking all grains and grain products. In this country it has been found in wheat, oats, rye, barley, flax seed, pinto beans, black-eyed peas, and alfalfa seed. Under confined conditions at Mesa, Arizona, it is completing development on all grain and grain products including bread, crackers, noodles, macaroni, etc., as well as soybeans, peanuts, castor beans, and several other articles.

7. Wherever it exists it is difficult to control. In California, for car-lot fumigation, it is recommended that the average dosage for other insects be doubled for the khapra beetle.

In the early spring the Standard Quarantine Committee of the Western Plant Board petitioned the Plant Pest Control Branch , Agricultural Research Service of the Department of Agriculture for assistance in conducting a survey to determine the general distribution of this insect in the Western States. The work was assigned to the Economic Insect Survey Section of the Plant Pest Control Branch. Dr. R. T. Cotton, Stored Grain insect Specialist of the Agricultural Marketing

Service, U.S. Department of Agriculture, and Mr. K. S. Rohwer of the Plant Pest Control Branch were made available to assist with this work. The survey was begun in early April and since several infestations of the insect were known to exist in southern Arizona and southern California only observational surveys were made in these States.

State Plant Pest Control officials were asked to assist in planning the survey for their State and to provide inspection assistance for conducting the work. In each of the States valuable assistance was obtained in selecting the routes to be followed and the mills to be inspected. In Arizona and California the State people were most helpful in assisting surveyors in becoming familiar with the habits of the insect in the known infested properties and in devising a satisfactory procedure for the inspection. Nevada, Utah and Oregon supplied personnel from their regular force for the survey in those States.

In each State the survey included representative grain handling establishments in the various parts of the State, with particular attention being directed to the larger wholesale establishments. Primary consideration was accorded feed mixing plants for it was found that such places usually had a wider assortment of feed materials from different parts of the country. For instance, a farmers' co-operative warehouse would have on hand several hundred tons of barley, wheat, and the like, all of local origin, while the Poultry or Dairy Producers Association in the same town would have a smaller tonnage of each on hand, but the stock would include local barley or wheat as well as cotton seed meal from Arizona or California, soybean meal from Minnesota, corn from Iowa, copra meal from the Philippines, etc. All of these establishments were carefully inspected, and in connection with this inspection an attempt was made to determine the material distribution pattern for the Western States.

Briefly these general statements can be made:

Feed grains, barley and wheat for the most part, from Arizona and California have but limited distribution to the north and east. These products are seldom found in warehouses or feed mills in other states. Some of these materials do move into Nevada, Utah, and occasionally Colorado, but not in appreciable quantities. Cotton seed meal and cake for the territory west of the Rockies is supplied almost without exception by firms in Arizona and California. Arizona Certified Sorghum Seed is prized throughout the Western States and moves in considerable quantity not only into states represented by the Western Plant Board but to other states further east including Texas, Oklahoma, Kansas, etc. The burlap business is much larger than might be supposed and of the area surveyed, Los Angeles, San Francisco and Portland supply most of the territory. No attempt was made to ascertain to what degree rice from California moves into the other states.

Inspections of warehouses by states were as follows:

Colorado	- 67	New Mexico	- 21	Oregon	- 36
Utah	- 77	Texas	- 6		
Idaho	- 29	Nevada	- 19		

Totals are not indicated for Arizona or California since the inspections made in these States during this survey were few in comparison with the total number of inspections that have been made by the two States. In Arizona it is known that most of the commercial warehouses in the State have been inspected. In California some 150 warehouses throughout the State, including the San Francisco Grain Terminal, have been inspected on one or more occasions. Time has not permitted the completion of inspection of warehouses in Washington; that work is now underway. It is not believed for the purpose of this detection survey that inspections are necessary in Wyoming or Montana.

Infestations now known to exist are as follows:

ARIZONA		CALIFORNIA		NEW MEXICO	
Maricopa County	- 5	Imperial County	- 5	Roosevelt County	- 1
Pinal County	- 1	Kern County	- 2	Curry County	- 2
Pima County	- 1	Riverside County	- 1		
Yuma County	- 3	Tulare County	- 2		
Mohave County	- 1	Fresno County	- 1		
Total 11 infestations in 5 counties		Total 11 infestations in 5 counties		Total 3 infestations in 2 countie	

There are 25 known infestations of khapra beetle in 12 counties in 3 states.

It would be safe to assume that the account outlined in the first few paragraphs of this report adequately explains the infestations at Alpaugh and Angiola. No attempt has been made to trace the source of the other 9 established infestations in California or the movement of the insect to Arizona and its subsequent spread there. That the insect has not been in Arizona or, in fact, established at several of the locations in California for very many years, is indicated by the degree to which the infestations have become generally distributed throughout the establishment in which it is found. One example will suffice. One of the larger establishments in Arizona in which an infestation has been found covers half or more of a city block. The building is divided into 4 sections, separated one from the other by sheet metal walls that are none too tight, and far from insect proof. The infestation as known to exist is confined to one of these sections. In fact, the insects are numerous in less than half of this section. It is not intended to infer that inspections have been sufficiently thorough to insure the lack of a single specimen in other parts of the plant; they have, however, been far from superficial. The same condition exists at every other infestation visited in the State.

The two infestations in New Mexico, one at Portales and the other at Texico, are attributable to the shipment of sorghum seed for this year's planting from an infested establishment in Arizona. The larvae were taken on the sacks at destination. The record of these two shipments together with four others, three of which went to Texas and the other to Oklahoma, was furnished by the warehouseman in Arizona. The sites in Texas and Oklahoma have also been examined but with negative results.

This survey included all types of large and small grain storage and milling establishments, small community storage and grinding establishments; old mills, some that have been in operation for a hundred years or more. In a large percentage of these mills, irrespective of outside temperatures, the khapra beetle could find sections, some large, some small, under which it can survive and build up, thus affording a source of injury and contamination to products produced or stored therein.

The habits of the khapra beetle are such that not only are its host materials hazardous to its spread but any other article that may be stored on the infested premises. The larvae at time of molt and pupation crawl from the grain in great profusion and secret themselves in corners, crevices, or on any article or thing within their range of travel. It is presumed the greatest hazard of spread exists in the larval stage.

As soon as the identity of this insect was known, the State Department of Agriculture in both California and Arizona in cooperation with the owners instigated a control program to reduce existing populations. DDT and oil, lindane, chlordane, and other insecticides were used and in some instances the infested materials were fumigated. In California, with the cooperation of the owners, a number of cars of materials from infested warehouses have been fumigated. The prompt action of these organizations has drastically reduced the number of insects present and has correspondingly lessened the hazards of spread.

CONCLUSIONS:

1. The khapra beetle probably was in this country as early as 1946. By 1949 the infestation was so serious in the J. B. Hill warehouse at Fresno as to cause its abandonment for grain storage.

2. It was apparently transported in used burlap from the Fresno warehouse to Alpaugh and Angiola in 1949, and by 1953 these infestations had reached serious economic proportions.

3. The manner in which the insect reached other locations in California and Arizona is not clear, but it is doubtful if any of the infestations are as old as the ones at Alpaugh and Angiola.

4. In all probability few of the known infestations reached economic proportions prior to 1953. This is indicated by lack of reports of insect damage from the warehousemen prior to that time and the localized condition of infestations in the majority of the warehouses.

5. The khapra beetle is not wide spread in the Western States. No doubt other infestations will be found, but for the most part they probably will be light and mainly in the areas in which infestations are now known to occur.

6. The khapra beetle would be a serious pest of stored products throughout the southern half of the United States and could become established in heated mills and warehouses possibly throughout the country.